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# SPECIES OF THE WASP GENUS *AULACUS* JURINE (HYMENOPTERA: AULACIDAE) ENDEMIC TO SOUTH AUSTRALIA.

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**Summary**

Jennings, J. T., Austin, A. D. & Stevens, N. B. Species of the Wasp genus *Aulacus* Jurine (Hymenoptera: Aulacidae) endemic to South Australia. *Trans. R. Soc. S. Aust.* **128**(1), 13-21, 31 May, 2004.

This study deals with the South Australian species of *Aulacus* Jurine, a fauna that comprises four geographically isolated, endemic species. *Aulacus moerens* Westwood is redescribed, and three new species (*A. belairensis*, *A. flindersbaudini* and *A. grossi*) are recognised. A diagnosis for the genus is presented, along with notes on taxonomic history and species diversity for Australia.

Key Words: Evanioidea, Aulacidae, *Aulacus*, taxonomy, parasitic wasps.

## Introduction

The Aulacidae are a family of parasitic wasps that are endoparasitoids of wood-boring wasps (Xiphydriidae) and beetles (Cerambycidae and Buprestidae) (e.g. Carlson 1979; Gauld & Bolton 1988; Smith 2001). Although at various times the Aulacidae have been treated as either a subfamily or group of the Evaniidae *s.l.*, most recent studies regard them as a distinct family (e.g. Naumann 1991; Mason 1993; Gauld 1995; Jennings & Austin 2000; Smith 2001).

Like other members of the Evanioidea, aulacids are characterised by the high insertion of the metasoma on the propodeum, but these wasps are also readily distinguished by the presence of fore wing vein 2m-cu (Gauld & Bolton 1988). Worldwide, the Aulacidae comprise 156 valid species (Smith 2001), but this is likely to be only one-third of the true size of the group. Smith (2001) has provided a catalogue of the world fauna, and included 48 species of *Aulacus* Jurine, 106 species of *Pristaulacus* Kieffer, and two species of *Panaulix* Benoit. Both *Aulacus* and *Pristaulacus* are worldwide in their distribution, but *Panaulix* is confined to sub-Saharan Africa. The Australian fauna comprises 34 described species (18 *Aulacus* and 16 *Pristaulacus*) (Smith 2001; Jennings 2001), but most taxa are inadequately described and date from the works of Kieffer (1911; 1912). No taxonomic studies have been undertaken on the Australian fauna since Crosskey (1953) described one *Aulacus* and two *Pristaulacus* species, even though modern collecting techniques, in particular Malaise trapping, have added significantly to the number of specimens held in collections.

As part of a project that aims to revise the aulacid fauna of Australia, this study deals with the unique and isolated *Aulacus* fauna of South Australia. *Aulacus moerens* Westwood is redescribed, and three new species from the Fleurieu Peninsula, Kangaroo Island, and the far north-west of South Australia are described. At the same time, the genus is redescribed and notes provided on taxonomic history and species diversity.

## Materials and Methods

Specimens were observed under a Zeiss light microscope or using scanning electron microscopy (SEM). Specimens for SEM were first cleaned to remove obvious dirt and other debris and examined uncoated under a Phillips XL30 field emission SEM at 1kv and a spot size of three.

Terms for general morphology follow Jennings and Austin (1994), and for wing venation follow the modified Comstock-Needham system, after Sharkey (1988), but with some modifications, and using the nomenclature of van Achterberg (1979) for cells. Terms for surface sculpturing follow Harris (1979). Where measurements are based on more than one specimen, data are presented as the mean followed by the range. The length of the ovipositor is measured from the tip of the metasoma.

Abbreviations for institutions which are repositories of the specimens referred to in this paper are: Hope Entomological Collections, Oxford (OXUM), South Australian Museum, Adelaide (SAMA), and Waite Insect and Nematode Collection, The University of Adelaide (WINC).

## Systematics

### *Aulacus* Jurine, 1807

*Aulacus* Jurine 1801: 163. [*nom. nud.*]
*Aulacus* Jurine 1807: 89. Type species: *Aulacus*

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*striatus* Jurine 1807, by monotypy (North America and Europe). – Blanchard 1840: 300; Schletterer 1889: 489; Kieffer 1903: 383, 453; Bradley 1908: 120; Kieffer 1912: 344, 370; Hedicke 1939: 17; Townes 1950: 113; Townes 1951: 659; Ochlke 1983: 441; Koslov 1988: 243; Alekseev 1995: 39; Konishi 1990: 638; Smith 2001: 268.

*Disphaeron* Dahlbom 1837: 175. Type species: *Aulacus arcticus* Dahlbom 1837, by monotypy. – (syn. Hedicke 1939: 18).

*Aulacinus* Westwood 1868: 331. Erected as a subgenus of *Aulacus*. Type species: *Aulacus (Aulacinus) moerens* Westwood 1868, by monotypy. – Kieffer 1903: 481; Bradley 1908: 120; Kieffer 1912: 349; Hedicke 1939: 24. (syn. Townes 1950: 113).

*Pammegischia* Provancher 1882: 302. Type species: *Pammegischia burquei* Provancher 1882, by monotypy. – Kieffer 1903: 383; Bradley 1908: 120; Kieffer 1912: 346; Townes 1938: 254; Hedicke 1939: 23. (syn. Kieffer 1902: 11).

*Parafoenus* Kieffer 1910: 350. No species included. Type species: *Parafoenus formosus* Kieffer 1912, by subsequent monotypy. – Kieffer 1912: 345; Hedicke 1939: 26. (syn. Townes 1950: 113).

*Neuraulacinus* Kieffer 1910: 350. Type species: *Neuraulacinus vespiformis* Kieffer 1910, by subsequent designation, see Kieffer 1912: 358. (designated from three species included by Kieffer 1911). – Kieffer 1912: 358; Hedicke 1939: 26. (syn. Townes 1950: 113).

*Micraulacinus* Kieffer 1910: 350. Type species: *Micraulacinus elegans* Kieffer 1910, by subsequent monotypy, see Kieffer 1912: 348. – Kieffer 1912: 348; Hedicke 1939: 24. (syn. Townes 1950: 113).

*Disaulacinus* Kieffer 1910: 350. Type species: *Disaulacinus flavimanus* Kieffer 1911, by subsequent monotypy, see Kieffer 1911: 224. – Kieffer 1912: 361; Hedicke 1939: 23. (syn. Crosskey 1953: 759).

*Pycnaulacus* Cushman 1929: 17. Type species: *Pycnaulacus brevicaudus* Cushman 1929, by original designation. – (syn. Townes 1950: 113).

*Diagnosis based on Australian species*

Head with or without occipital carina; frons with or without a transverse carina above antennal sockets; antenna 14-segmented in female, 13-segmented in male; antennal insertions low on face, near lower margin of eyes; eyes small, circular or subcircular, remote from the mandibles; scape usually deeply convex in lateral view, much thicker than pedicel and flagellomeres; metapostnotum present between propodeum and metanotum as a distinct sclerotisation; propodeum pyramidal, metasoma inserted high on the apex; metasomal first tergite (T1) and second tergite (T2) fused dorsally; hind coxa with (Fig. 16) or without a groove or notch on inner ventral surface, the apposed grooves or notches forming an ovipositor guide; hind trochanter with a transverse trochanteral groove; prefemur (trochantellus) present (Figs 11-12); each tarsal claw with one basal tooth (sometimes difficult to see); fore wings not plicate at rest; fore wing vein 2m-cu present, vein 2r-m often absent, largely spectral when present, vein 3r-m present, often largely spectral (Figs 1, 3, 5); ovipositor exserted, protruding well beyond apex of metasoma.

*Comments*

*Aulacus* was first erected as a genus by Jurine (1801), but as a *nomen nudum* since no species were included. In 1807, Jurine rectified this by describing *Aulacus striatus*. Early authors did not define the generic limits of *Aulacus*, so a number of genera were erected (see above) without due consideration of interspecific variation. This resulted in a proliferation of genera: *Disphaeron* Dahlbom, *Disaulacinus* Kieffer, and *Micraulacinus* Kieffer from Australia; *Neuraulacinus* Kieffer from Australia and South America; *Parafoenus* Kieffer from South America; and *Pycnaulacus* Cushman from the USA. By 1912, Kieffer had recognised some 41 species in six genera and the subgenus *Aulacinus* Westwood. Of these, 17 species were Australian. Although Kieffer (1902) had synonymised *Pammegischia* Provancher with *Aulacus*, the mainly North American *Pammegischia* were not transferred to *Aulacus* until much later (Townes 1938). In his 1939 catalogue, Hedicke synonymised *Disphaeron* and included a number of additional species in the other genera. Townes (1950) evaluated various characters such as wing venation, and in the process, defined the generic limits of *Aulacus*. This led him to synonymise *Aulacinus*, *Micraulacinus*, *Neuraulacinus*, *Parafoenus*, and *Pycnaulacus* with *Aulacus*. Townes erroneously synonymised *Disaulacinus* with *Aulacostethus* Philippi (now *Pristaulacus*). *Disaulacinus* was later synonymised with *Aulacus* by Crosskey (1953).

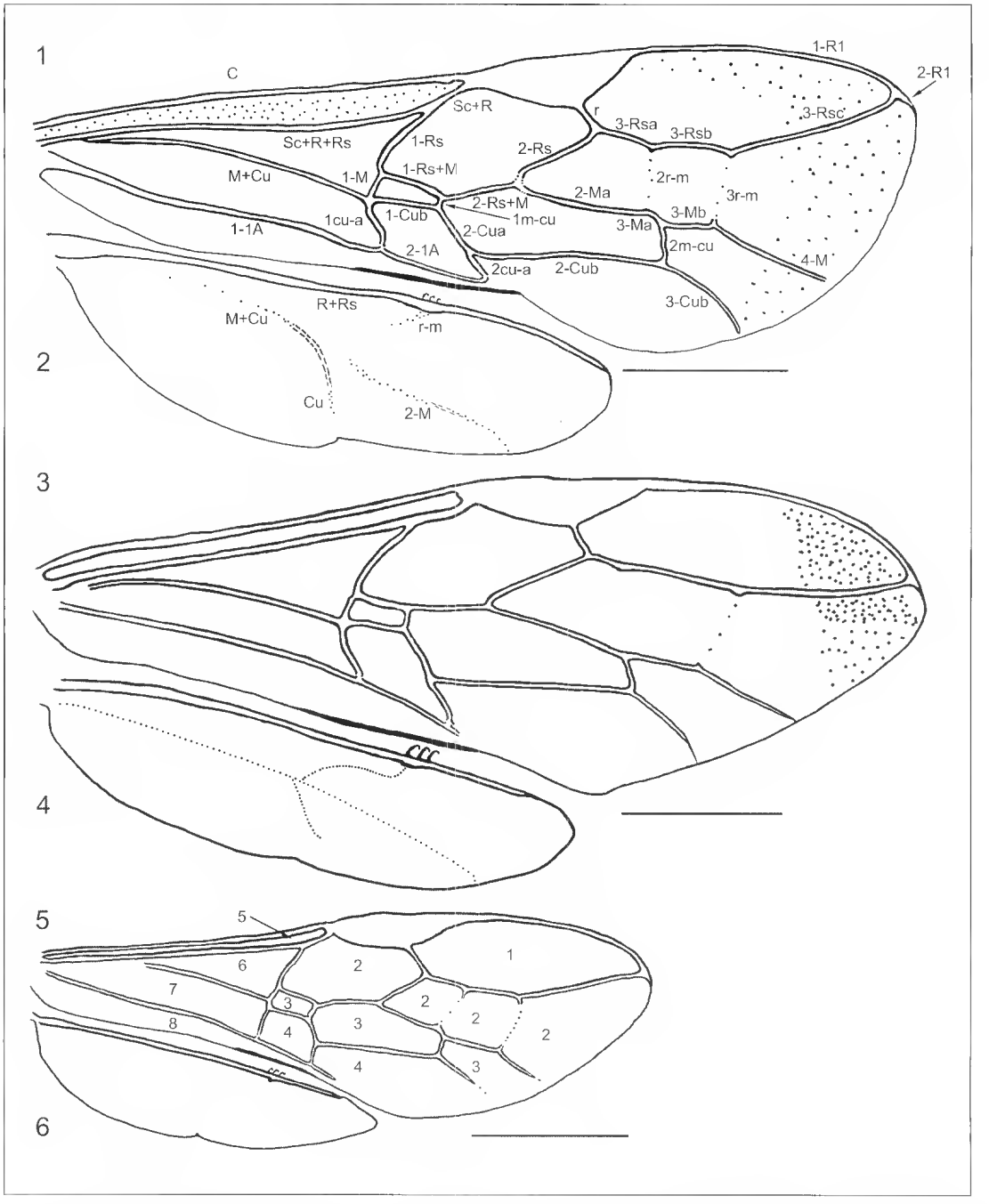
At present, 48 species worldwide are included in *Aulacus*; 18 species are endemic to Australia (Smith 2001; Jennings 2001). Most of the latter are from the higher rainfall, forested areas of the east coast of Australia, including Tasmania. Here we treat the geographically isolated fauna of South Australia and distinguish them from the known Australian taxa. Because there are many undescribed species from south-western and eastern Australia, a key to Australian species would be premature.

*Aulacus belairensis* sp. nov.
(FIGS 1-2, 7, 11, 13, 16-17, 19)

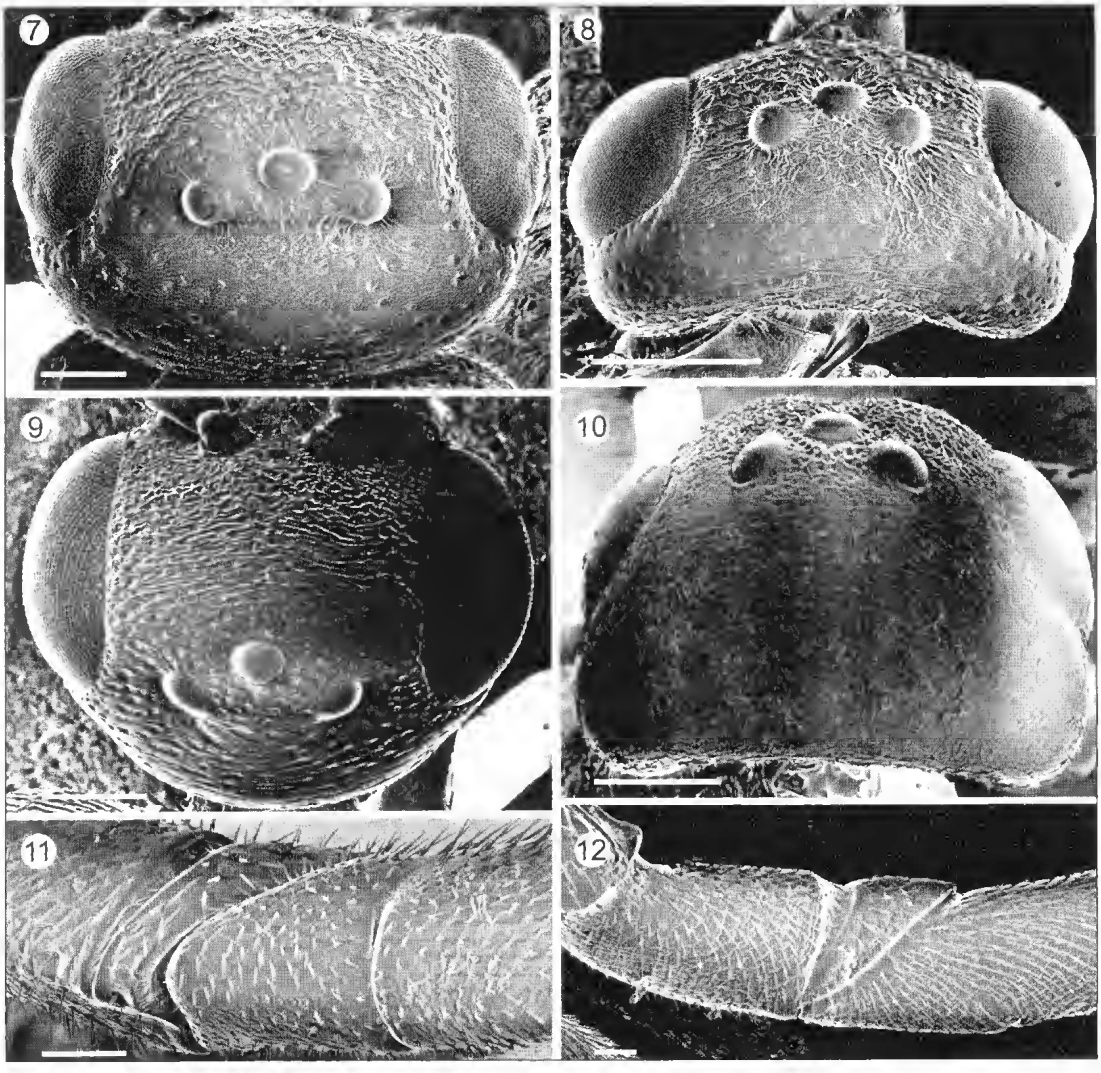
*Material Examined*

*Holotype*

♀, Belair N. P., 11-18.ii.1996, J.T. Jennings, SAMA.




Figs 1-6. Fig. 1. Right fore wing of *Aulacus belairensis* sp. nov. holotype female. The cells are: 1 = marginal, 2 = submarginal, 3 = discal, 4 = subdiscal, 5 = costal, 6 = basal, 7 = subbasal, 8 = plical. Fig. 2. Right hind wing of *Aulacus belairensis* sp. nov. holotype female. Fig. 3. Right fore wing of *Aulacus flindersbaudini* sp. nov. holotype male. Fig. 4. Right hind wing of *Aulacus flindersbaudini* sp. nov. holotype male. Fig. 5. Right fore wing of *Aulacus grossi* sp. nov. holotype female. Fig. 6. Right hind wing of *Aulacus grossi* sp. nov. holotype female. Scale bars = 1 mm.




Figs 7-12. Dorsal views of head. Fig. 7. *Aulacus belairensis* sp. nov. holotype female. Fig. 8. *Aulacus flindersbaudini* sp. nov. holotype male. Fig. 9. *Aulacus grossi* sp. nov. holotype female. Fig. 10. *Aulacus mocrens* holotype female. Lateral views of hind trochanter and prefemur. Fig. 11. *Aulacus belairensis* sp. nov. holotype female. Fig. 12. *Aulacus flindersbaudini* sp. nov. holotype male. Scale bars = 200 μm 7, 9; 500 μm 8, 10; 50 μm 11, 12.

*Paratypes*

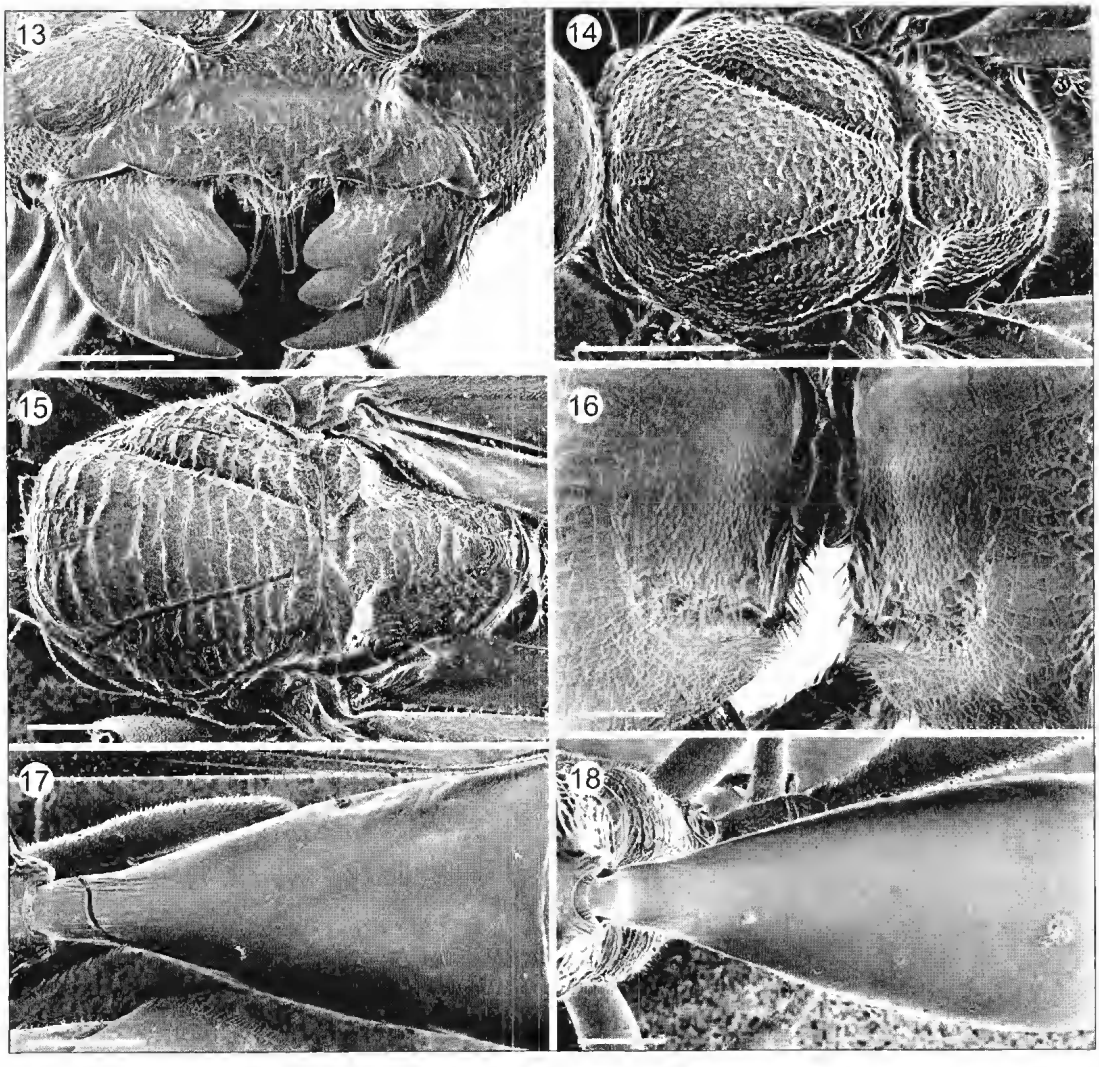
SA: 1 ♀, Belair National Park, 10-17.iii.1996, J.T. Jennings, WINC; 1 ♀, Belair National Park, xii.1996, J.T. Jennings, WINC.

*Female*

*Length*: 5.0 mm (4.4 – 5.5 mm), excluding ovipositor.

*Colour*: Head orange, with variable amounts of dark brown around ocelli; scape and pedicel orange with flagellomeres dark brown; propleuron dark brown; body black except for variable amounts of orange on pronotum; legs predominantly light to dark brown; metasoma dark brown; ovipositor sheaths black, ovipositor orange; wings fuscous, darker apically on the marginal and submarginal cells.

*Head*: 1.2 (1.0 – 1.3) x wider than long when viewed dorsally; face rugose, with a few large punctures near eye margin, pubescence short; frons without transverse carina above toruli, rugose, with a few punctures near eye margin, pubescence short;




Figs 13-18. Fig. 13. Mandibles and clypeus of *Aulacus belairensis* sp. nov. holotype female. Fig. 14. Dorsal view of mesoscutum, scutellum and axillae of *Aulacus belairensis* sp. nov. holotype female. Fig. 15. Dorsal view of mesoscutum, scutellum and axillae of *Aulacus flindersbaudini* sp. nov. holotype male. Fig. 16. Ovipositor guide on hind coxae of *Aulacus belairensis* sp. nov. holotype female. Fig. 17. Dorsal view of metasomal T1 and T2 of *Aulacus belairensis* sp. nov. holotype female. Fig. 18. Dorsal view of metasomal T1 and T2 of *Aulacus grossi* sp. nov. holotype female. Scale bars = 200 μm 13, 17, 18; 500 μm 14, 15; 100 μm 16.

vertex and gena punctate-imbricate, a few radiating striations near ocelli, with scattered short setae (Fig 7); posterior margin of head not concave in dorsal view; malar space 0.25 x height eye; clypeus 0.37 x as wide as high, margin sinuate with small medial process (Fig. 13); mandibles broad, with two large medial teeth (Fig. 13); distance from lateral ocellus to eye margin 0.83 (0.78 – 0.90) x distance between lateral ocelli; scape 1.6 (1.6 – 1.7) x length pedicel; first flagellomere 1.0 (0.9 – 1.1) x as long as scape, equal to length second flagellomere.

*Mesosoma.* Propleuron rugulose, pubescence long, ventro-lateral carina weak; pronotum rugose; mesoscutum in lateral view rounded antero-dorsally, medial and lateral lobes rugose-punctate, with scattered setae, admedial lines present (Fig. 14); scutellum and axillae rugose-punctate (Fig. 14); mesepisternum reticulate, with short pubescence; mesepimeron broad, scrobiculate; metapleuron rugose, with short pubescence; propodeum rugose,

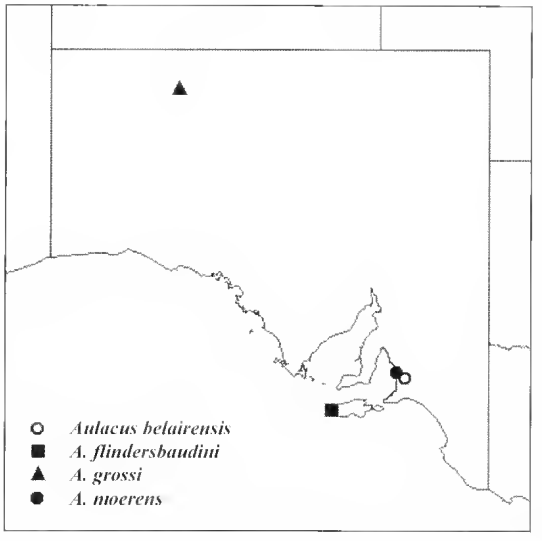



Fig. 19. Distribution of South Australian *Aulacus* spp.

posterior margin scrobiculate; hind coxa with ovipositor guide ventrally on inner margin (Fig. 16); hind trochanter and femur imbricate, pubescence short; prefemur somewhat indistinct (Fig 11); hind tibia imbricate, pubescence short, with scattered emergent stout setae; hind femur 0.70 (0.68 – 0.72) x length hind tibia; hind tibia with ventro-apical pecten of short robust spines; hind tarsal segments 1-4 with ventro-apical pecten of short robust spines, segment 1, 2.8 x length segment 2; segment 2, 1.4 x length segment 3; segment 3, 1.6 x length segment 4; segment 4, 0.6 x length segment 5; hind tarsal claw 0.5 x length segment 5; fore wing vein 2r-m and 3r-m largely spectral (Fig. 1); hind wing with 3 hamuli (Fig. 2).

*Metasoma.* Clavate, 1.67 (1.54 – 1.71) x length of mesosoma; T1 and T2 anteriorly narrow, smooth dorsally except for a few strigate wrinkles anteriorly on T1; ovipositor 5.9 (5.0 – 6.5 mm) mm.

*Male*

Unknown.

*Remarks*

This species is named after the holotype locality, Belair National Park, South Australia (Fig. 19). All specimens were collected by Malaise trap, and nothing is known of its biology. This species can be separated from other South Australian species by the fuscous wings that are darker apically on the marginal and submarginal cells, and the strigate wrinkles anteriorly on metasomal T1. Also, it is similar in size and appearance to *A. elegans* (Kieffer) which has been collected from several localities in New South Wales and Victoria. The two can be easily separated in that *A. elegans* has a shiny head, an orange metasoma, and has different sculpturing patterns; for example, the vertex is largely smooth with just a few scattered shallow punctures.

*Aulacus flindersbaudini* sp. nov.
(FIGS 3-4, 8, 12, 15, 19)

*Material Examined*

*Holotype*

♂, West Bay, Flinders Chase Nat. Park, Kangaroo Is. S.A., i.1986, A.D. Austin, SAMA. [Flagellomeres 2-11, right hind tarsal segments 4-5, and claw missing].

*Male*

*Length*: 8.0 mm.

*Colour:* Body red except metasomal T1 dark brown dorsally; flagellomeres 2 and 3 black; wings hyaline; fore wing with brown spot apically on the marginal and submarginal cells.

*Head*: 1.6 x wider than long when viewed dorsally; face punctate-imbricate, pubescence short; frons without transverse carina above toruli, areolate-rugose, pubescence short; vertex areolate-rugose medially, with a few radiating striations near ocelli, with a few transverse striations posteriorly, punctate-imbricate laterally, pubescence short (Fig. 8); gena punctate-imbricate, with scattered short setae; posterior margin of head slightly concave in dorsal view; malar space 0.34 x height eye; clypeus 3.7 x as wide as high, margin sinuate with small medial process; mandibles broad, with two large medial teeth; distance from lateral ocellus to eye margin equal to distance between lateral ocelli; scape 1.8 x length pedicel; length first flagellomere equal to length scape, second flagellomere missing.

*Mesosoma.* Propleuron smooth anteriorly to weakly rugulose posteriorly, with scattered long setae; ventro-lateral carina weak; pronotum rugulose; mesoscutum in lateral view rounded antero-dorsally, medial and lateral lobes strigate with scattered short setae, admedial lines present (Fig. 15); scutellum and axillae strigate (Fig. 15); mesepisternum areolate-rugose, with short pubescence; mesepimeron broad, scrobiculate; metapleuron areolate-rugose, with short pubescence; propodeum areolate-rugose, posterior margin scrobiculate; hind coxa without groove ventrally on inner margin, weakly rugulose to strigate dorsally, pubescence short laterally; hind trochanter imbricate, pubescence short; prefemur indistinct (Fig 12); hind femur imbricate, pubescence short; hind tibia imbricate, pubescence short, with scattered emergent stout setae; hind femur 0.77 x length hind tibia; hind tibia with ventro-apical pecten of short robust spines; hind tarsal segments 1-4 with ventro-apical pecten of

short robust spines, segment 1, 2.0 x length segment 2; segment 2, 1.6 x length segment 3; segment 3, 2.4 x length segment 4; segment 4, 0.8 x length segment 5; hind tarsal claw 0.7 x length segment 5; fore wing vein 2r-m incomplete, evident only by a small node on 2r, 3r-m entirely spectral (Fig. 3); hind wing with 2 hamuli (Fig. 4).

*Metasoma.* Clavate, 1.5 x length of mesosoma; T1 and T2 dorsally narrow, smooth; digitus about same length as basiparameres.

*Female*

Unknown.

*Remarks*

*Aulacus flindersbaudini* is named to commemorate the meeting of Matthew Flinders and Nicolas Baudin at Encounter Bay, South Australia in 1802. This species is known only from the holotype location (Fig. 19), and nothing is known of its biology. This species is readily distinguished from other South Australian species by the presence of a brown spot apically on the marginal and submarginal cells of the fore wing (Fig. 3); this spot is absent in the other species. *Aulacus flindersbaudini* also lacks the groove or ovipositor guide on the inner margin of the hind coxae. The brown spot on the fore wing is found in several species from south-western and eastern Australia, such as *A. pallicaudus* (Cameron), but all of these species are largely black.

## *Aulacus grossi* sp. nov.
(FIGS 5-6, 9, 18-19)

*Material Examined*

*Holotype*

♀, nr. Victory Well, Everard Pk Stn, S. Aust. 2-4.xi.1970, G. Gross, SAMA.

*Female*

*Length*: 4.5 mm, excluding ovipositor.

*Colour:* Head black; mesosoma, antennae, and legs light brown; metasoma black except for basal part of metasomal T1; wings hyaline.

*Head*: 1.1 x wider than long when viewed dorsally; face, frons without transverse carina above toruli; frons and vertex rugose-punctate (Fig. 9), with scattered short setae, a little denser on face; gena smooth, almost glabrous; posterior margin of head not concave in dorsal view; malar space 0.16 x height eye; clypeus 4.0 x as wide as high, punctate, margin sinuate with small medial process; mandibles broad, with two large medial teeth; distance from lateral ocellus to eye margin 0.72 x distance between lateral ocelli; scape 1.8 x length pedicel; first flagellomere 0.72 x as long as scape, 0.52 x as long as second flagellomere.

*Mesosoma.* Propleuron weakly rugulose-punctate, almost smooth, with a few scattered setae; ventro-lateral carina weak; pronotum rugose-punctate; mesoscutum in lateral view rounded antero-dorsally, medial and lateral lobes rugose, almost strigate, with scattered short setae, admedial lines distinct; scutellum and axillae rugose, almost strigate; mesepisternum rugose-punctate, with short pubescence; mesepimeron broad, scrobiculate; metapleuron rugose-punctate, with short pubescence; propodeum rugose, with several pronounced carinae, posterior margin scrobiculate; hind coxa with groove ventrally on inner margin, weakly strigate dorsally, pubescence short; hind trochanter and hind femur imbricate, pubescence short; hind tibia imbricate, pubescence short, with scattered emergent stout setae; hind femur 0.8 x length hind tibia; hind tibia with ventro-apical pecten of short robust spines; hind tarsal segments 1-4 with ventro-apical pecten of short robust spines, segment 1, 2.9 x length segment 2; segment 2, 1.35 x length segment 3; segment 3, 2.0 x length segment 4; segment 4, 0.5 x length segment 5; hind tarsal claw 0.5 x length segment 5; fore wing veins 2r-m and 3r-m largely spectral (Fig. 5); hind wing with 2 hamuli (Fig. 6).

*Metasoma.* Clavate, equal in length to mesosoma; T1 and T2 dorsally broad, smooth (Fig. 18); ovipositor 4.2 mm.

*Male*

Unknown.

*Remarks*

*Aulacus grossi* has a broad metasoma when viewed dorsally which distinguishes it from both *A. belairensis* and *A. flindersbaudini*. It is also the smallest Australian species of *Aulacus* known, and can be distinguished from all other Australian species by its colour pattern, i.e. head and metasoma black, and mesosoma light brown. *Aulacus grossi* is known from a single specimen from Everard Park Station in the north-west of South Australia (Fig. 19), and is named after the collector, Dr Gordon Gross, formerly Curator of Entomology, South Australian Museum. Nothing is known about its biology.

## *Aulacus moerens* Westwood
(FIGS 10, 19)

*Aulacus (Aulacinus) moerens* Westwood 1868: 331. – Westwood 1874: 129; Schletterer 1889: 517.

*Aulacinus moerens* – Kieffer 1902: 12; Kieffer 1903: 481; Kieffer 1904: 6; Kieffer 1912: 349, 356; Hedicke 1939: 25.

*Aulacus maerens* – Dalla Torre 1902: 1061 (unnecessary emendation)

*Aulacus moerens* – Smith 2001: 273.

*Material Examined*

*Holotype*

♀, Adelaide [illeg.] 1865, OXUM. Antennae missing, head glued to mesosoma, metasoma glued to card, ovipositor sheaths missing.

*Female*

*Length*: 10.5 mm, excluding ovipositor.

*Colour:* Black, except tibiae and tarsi largely light brown, ovipositor light brown; wings hyaline.

*Head*: 1.18 wider than long when viewed dorsally; face rugulose, pubescence long; frons with pronounced transverse carina above toruli, rugulose, with long pubescence; vertex punctulate-imbricate, slight rugosity posteriorly near occiput, with short scattered setae (Fig. 10); gena punctulate-imbricate, with scattered short setae; posterior margin of head not concave in dorsal view; malar space 0.2 x height eye; clypeus 4.0 x as wide as high, margin sinuate; mandibles broad, with two large medial teeth; distance from lateral ocellus to eye margin 0.9 x distance between lateral ocelli; antennae missing.

*Mesosoma.* Propleuron rugulose, pubescence long, ventro-lateral carina present; pronotum without angular process, rugose; mesoscutum in lateral view angular antero-dorsally, medial and lateral lobes strigate, with scattered short setae, admedial lines present; scutellum strigate; axillae rugose; mesepisternum rugose, with long pubescence; mesepimeron broad, scrohiculate; metapleuron rugose, with short pubescence; propodeum rugose, with medial dorso-ventral scrobiculate groove, posterior margin scrobiculate; hind coxa without groove ventrally on inner margin, strigate dorsally, pubescence long laterally; hind trochanter punctulate-imbricate, pubescence short; hind femur imbricate, pubescence short; hind tibia imbricate, pubescence short, with scattered emergent stout setae; hind femur 0.74 x length hind tibia; hind tibia without ventro-apical pecten of short robust spines; hind tarsal segments 1-4 with ventro-apical pecten of short robust spines, segment 1, 2.7 x length segment 2; segment 2, 1.6 x length segment 3; segment 3, 2.0 x length segment 4; segment 4, 0.4 x length segment 5; hind tarsal claw 0.6 x length segment 5; fore wing vein 2r-m pale brown, tubular, 3r-m spectral in middle half; hind wing with 3 hamuli.

*Metasoma.* Ovate, 1.25 x length of mesosoma; T1 and T2 smooth except slight rugosity medially; ovipositor 4.0 mm.

*Male*

Unknown.

*Remarks*

Although both *A. grossi* and *A. moerens* have an ovate metasoma, the latter species is a much larger and differs in a number of ways, including its largely black colour, the lack of an ovipositor guide on the hind coxae, and the presence of a small medial process on the clypeus. It does not resemble any other Australian species. This species is known only from the holotype locality, Adelaide, South Australia (Fig. 19), and nothing is known of its biology.

## Acknowledgments

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